



## UNITED STATES PATENT AND TRADEMARK OFFICE

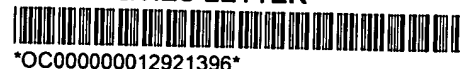
UNITED STATES DEPARTMENT OF COMMERCE  
 United States Patent and Trademark Office  
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 P.O. Box 1450  
 Alexandria, Virginia 22313-1450  
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APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/812,409	03/29/2004	David Alan Baldwin	53757-5013

MORGAN, LEWIS & BOCKIUS LLP  
 1701 Market Street  
 Philadelphia, PA 19103-2921



CONFIRMATION NO. 1261  
 FORMALITIES LETTER



\*OC000000012921396\*

Date Mailed: 06/10/2004

## NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

*Filing Date Granted*

**Items Required To Avoid Abandonment:**

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.  
*Applicant must submit \$ 770 to complete the basic filing fee for a non-small entity. If appropriate, applicant may make a written assertion of entitlement to small entity status and pay the small entity filing fee (37 CFR 1.27).*
- The oath or declaration is missing.  
*A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.*
- To avoid abandonment, a late filing fee or oath or declaration surcharge as set forth in 37 CFR 1.16(e) of \$130 for a non-small entity, must be submitted with the missing items identified in this letter.

**SUMMARY OF FEES DUE:**

Total additional fee(s) required for this application is **\$900** for a Large Entity

- **\$770** Statutory basic filing fee.
- **\$130** Late oath or declaration Surcharge.


Replies should be mailed to: Mail Stop Missing Parts  
 Commissioner for Patents  
 P.O. Box 1450

09/21/2004 JBALINAN 00000037 10812409

01 FC:1001  
 02 FC:1051

770.00 OR  
 130.00 OR Alexandria VA 22313-1450

*A copy of this notice MUST be returned with the reply.*

A handwritten signature in black ink, appearing to read "M. M. al", written over a horizontal line.

Customer Service Center

Initial Patent Examination Division (703) 308-1202

PART 2 - COPY TO BE RETURNED WITH RESPONSE



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: David Alan Baldwin :  
and Todd L. Hylton :

Serial No.: 10/812,409 : Attorney Docket No.: 53757-5013

Filed: March 29, 2004 : Art Unit: 1753

For: System And Method For Performing :  
Sputter Etching Using Independent :  
Ion And Electron Sources And A :  
Substrate Biased With An A- :  
Symmetric Bi-Polar DC Pulse :  
Signal :

**RESPONSE TO NOTICE TO FILE  
MISSING PARTS OF APPLICATION**

Mail Stop Missing Parts  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313

Sir:

In response to the Notice to File Missing Parts of Application Filing Date Granted mailed June 10, 2004, enclosed are the following:

1. Application Data Sheet;
2. Executed Combined Declaration and Power of Attorney;
3. A copy of the Notice to File Missing Parts;
4. Request for Extension of Time;
5. Copy of Assignment and Recordation Cover Sheet;
6. Check in the amount of \$700.00 to cover filing fee, surcharge, extension fee and assignment recordation fee; and
7. Self-addressed stamped return postcard.

Applicant hereby asserts status as a small entity under 37 C.F.R. § 1.27.

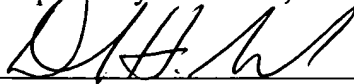
**CERTIFICATE OF MAILING (37 C.F.R. § 1.8)**

I hereby certify that this paper, and the papers and/or fees referred to herein as transmitted, submitted or enclosed, are being deposited on the date shown below with the U.S. Postal Service with sufficient postage as first-class mail in an envelope addressed to the Mail Stop Missing Parts, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313.

Name Daniel H. Golub Signature  Date of Deposit September 16, 2004

The Commissioner is hereby authorized to charge any deficiencies or credit any overpayments in connection with this submission to Deposit Account No. 50-0310. A duplicate copy of this page is enclosed.

Respectfully submitted,



---

Daniel H. Golub  
Registration No. 33,701  
MORGAN, LEWIS & BOCKIUS LLP  
1701 Market Street  
Philadelphia, Pennsylvania 19103-2921  
215.963.5055

Dated: September 16, 2004

Practitioner's Docket No. 53757-5013

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: David A. Baldwin and Todd L. Hylton

Application No.: 10 1812,409 Group No.: Not yet known

Filed: March 29, 2004 Examiner: Not yet known

For: System and method for performing Sputter Etching Using Independent Ion and Electron sources and a substrate Biased with an A-Symmetric B-Polar DC Pulse signal

Mail Stop Missing Parts

Commissioner for Patents

P.O. Box 1450, Alexandria VA 22313-1450

APPLICATION DATA SHEET

37 C.F.R. § 1.76

NOTE: 37 C.F.R. § 1.76(a): "Application data sheet. An application data sheet is a sheet or sheets, that may be voluntarily submitted in either provisional or nonprovisional applications, which contains bibliographic data, arranged in a format specified by the Office. If an application data sheet is provided, the application data sheet is part of the provisional or nonprovisional application for which it has been submitted."

BIBLIOGRAPHIC DATA

1. Applicant Information

NOTE: 37 C.F.R. § 1.76(b)(1): "(1) Applicant information. This information includes the name, residence, mailing address, and citizenship of each applicant (§ 1.41(b)). The name of each applicant must include the family name, and at least one given name without abbreviation together with any other given name or initial. If the applicant is not an inventor, this information also includes the applicant's authority (§§ 1.42, 1.43, and 1.47) to apply for the patent on behalf of the inventor."

CERTIFICATION UNDER 37 C.F.R. §§ 1.8(a) and 1.10\*

(When using Express Mail, the Express Mail label number is mandatory;  
Express Mail certification is optional.)

I hereby certify that, on the date shown below, this correspondence is being:

MAILING

☒ deposited with the United States Postal Service in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

37 C.F.R. § 1.8(a)

37 C.F.R. § 1.10 \*

☒ with sufficient postage as first class mail.

☐ as "Express Mail Post Office to Addressee"

Mailing Label No. \_\_\_\_\_ (mandatory)

TRANSMISSION

☐ facsimile transmitted to the Patent and Trademark Office, (703) \_\_\_\_\_

Date: 09/16/2004

Signature

Daniel H. Golub

(type or print name of person certifying)

\* Only the date of filing (§ 1.6) will be the date used in a patent term adjustment calculation, although the date on any certificate of mailing or transmission under § 1.8 continues to be taken into account in determining timeliness. See § 1.703(f). Consider "Express Mail Post Office to Addressee" (§ 1.10) or facsimile transmission (§ 1.6(d)) for the reply to be accorded the earliest possible filing date for patent term adjustment calculations.

(Application Data Sheet [4-1.1]—page 1 of 7)

First applicant:

David Alan Baldwin  
GIVEN NAME MIDDLE INITIAL OR NAME FAMILY (OR LAST NAME)

Citizenship USA

Residence 4603 Autumn Lake Way  
Annandale, Virginia 22003

Second applicant, (if any)

Todd Lanier Hylton  
GIVEN NAME MIDDLE INITIAL OR NAME FAMILY (OR LAST NAME)

Citizenship USA

Residence 705 Crown Meadow Drive  
Great Falls, Virginia 22066

Third applicant, (if any)

\_\_\_\_\_  
GIVEN NAME MIDDLE INITIAL OR NAME FAMILY (OR LAST NAME)

Citizenship \_\_\_\_\_

Residence \_\_\_\_\_

Fourth applicant, if any

\_\_\_\_\_  
GIVEN NAME MIDDLE INITIAL OR NAME FAMILY (OR LAST NAME)

Citizenship \_\_\_\_\_

Residence \_\_\_\_\_

Fifth applicant, (if any)

\_\_\_\_\_  
GIVEN NAME MIDDLE INITIAL OR NAME FAMILY (OR LAST NAME)

Citizenship \_\_\_\_\_

Residence \_\_\_\_\_

Sixth applicant, (if any)

\_\_\_\_\_  
GIVEN NAME MIDDLE INITIAL OR NAME FAMILY (OR LAST NAME)

Citizenship \_\_\_\_\_

Residence \_\_\_\_\_

- ☐ Applicant is not the inventor and applicant's authority (§§ 1.42, 1.43 and 1.47) to apply for the patent on behalf of the inventor is as follows:

2. Correspondence information

NOTE: 37 C.F.R. § 1.76(b)(2): "(2) Correspondence information. This information includes the correspondence address, which may be indicated by reference to a customer number, to which correspondence is to be directed (see § 1.33(a))."

Correspondence for this application should be addressed as follows:

Name: Daniel A. Golub

Address: 1701 Market Street  
Philadelphia, PA 19103

☐ Customer No.: \_\_\_\_\_

3. Application information.

NOTE: 37 C.F.R. § 1.76(b)(3): "Application information. This information includes the title of the invention, a suggested classification, by class and subclass, the Technology Center to which the subject matter of the invention is assigned, the total number of drawing sheets, a suggested drawing figure for publication (in a nonprovisional application), any docket number assigned to the application, the type of application (e.g., utility, plant, design, reissue, provisional), whether the application discloses any significant part of the subject matter of an application under a secrecy order pursuant to § 5.2 of this chapter (see § 5.2(c)), and, for plant applications, the Latin name of the genus and species of the plant claimed, as well as the variety denomination. The suggested classification and Technology Center information should be supplied for provisional applications whether or not claims are present. If claims are not present in a provisional application, the suggested classification and Technology Center should be based upon the disclosure."

Title of Invention: System and method for performing sputter etching using independent ion and electron sources and a substrate biased with an asymmetric bi-polar DC pulse signal

Docket number assigned to this application: 53757-5013

Suggested Classification: Class:

Subclass:

Technology Center to which subject matter is assigned:

NOTE: "The suggested classification and Technology Center information should be supplied for provisional applications whether or not claims are present. If claims are not present in a provisional application, the suggested classification and Technology Center should be based upon the disclosure." 37 C.F.R. § 1.76(b)(3).

Total number of drawing sheets:

Type of application:

☒ utility

☒ application is to be published

Suggested drawing figure for publication: Fig. 1

☐ application is not to be published

☐ plant

☐ Latin names of the genus \_\_\_\_\_  
species \_\_\_\_\_

of plant being claimed.

☐ design

☐ reissue

☐ provisional

Secrecy order under § 5.2:

This application

☒ does not disclose

☐ discloses a significant part of the

subject matter of an application which is under a secrecy order pursuant to § 5.2.

4. Representative information

*NOTE: 37 C.F.R. § 1.76(b)(4) states: "Representative information. This information includes the registration number of each practitioner having a power of attorney or authorization of agent in the application (preferably by reference to a customer number). Providing this information in the application data sheet does not constitute a power of attorney or authorization of agent in the application (see § 1.34(b))." (Emphasis added).*

The following have a power of attorney or authorization of agent in this application:

Name of attorney (agent): Daniel H. Golub

Address: 1701 Market Street  
Philadelphia, PA 19103

Customer No.: \_\_\_\_\_

## 5. Domestic Priority Information

**NOTE:** "Domestic priority information. This information includes the application number, the filing date, the status (including patent number if available), and relationship of each application for which a benefit is claimed under 35 U.S.C. 119(e), 120, 121, or 365(c). Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and § 1.78(a)(2) or § 1.78(a)(4), and need not otherwise be made part of the specification." 37 C.F.R. § 1.76(b)(5).

**WARNING:** 37 C.F.R. § 1.78 Claiming benefit of earlier filing date and cross-references to other application.

"(a) \* \* \*

(2) Except for a continued prosecution application filed under § 1.53(d), any nonprovisional application claiming the benefit of one or more prior filed copending nonprovisional applications or international applications designating the United States of America must contain a reference to each such prior application, identifying it by application number (consisting of the series code and serial number) or international application number and international filing date and indicating the relationship of the applications. This reference must be submitted during the pendency of the application, and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. This time period is not extendable. Unless the reference required by this paragraph is included in an application data sheet (§ 1.76), the specification must contain or be amended to contain such reference in the first sentence following the title. If the application claims the benefit of an international application, the first sentence of the specification must include an indication of whether the international application was published under PCT Article 21(2) in English (regardless of whether benefit for such application is claimed in the application data sheet). The request for a continued prosecution application under § 1.53(d) is the specific reference required by 35 U.S.C. 120 to the prior application. The identification of an application by application number under this section is the specific reference required by 35 U.S.C. 120 to every application assigned that application number. Cross references to other related applications may be made when appropriate (see § 1.14). Except as provided in paragraph (a)(3) of this section, the failure to timely submit the reference required by 35 U.S.C. 120 and this paragraph is considered a waiver of any benefit under 35 U.S.C. 120, 121, or 365(c) to such prior application. The time period set forth in this paragraph does not apply to an application for a design patent." (Emphasis added)

☒ Domestic priority for this application is claimed as follows:

☒ 35 U.S.C. § 120: Application No.: 10/200,578  
Filed: 07/22/2002  
Status: ISSUED AS 6,723,209  
Relationship: PARENT

☒ 35 U.S.C. § 120: Application No.: 10/137,897  
 Filed: 05/02/2002  
 Status: issued as 6,679,976  
 Relationship: \_\_\_\_\_  
☒ 35 U.S.C. § 120: Application No.: 09/810,687  
 Filed: 03/16/2001  
 Status: issued as 6,402,904  
 Relationship: \_\_\_\_\_  
☒ 35 U.S.C. § 120: Application No.: 09/810,688  
 Filed: 03/16/2001  
 Status: issued as 6,402,900  
 Relationship: \_\_\_\_\_

**WARNING:** 37 C.F.R. § 1.78 Claiming benefit of earlier filing date and cross-references to other application.

"(a) \* \* \*

(2)" If the application claims the benefit of an international application, the first sentence of the specification must include an indication of whether the international application was published under PCT Article 21(2) in English (regardless of whether benefit for such application is claimed in the application data sheet).

## 6. Foreign priority information

**NOTE:** "Foreign priority information. This information includes the application number, country, and filing date of each foreign application for which priority is claimed, as well as any foreign application having a filing date before that of the application for which priority is claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and § 1.55(a)." 37 C.F.R. § 1.76(b)(6).

**WARNING:** Section 1.55(a) provides (1) that in an original application filed under 35 U.S.C. 111(a) (other than a design application) the claim for priority must be presented during the pendency of the application, and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior foreign application; (2) in an application that entered the national stage from an international application after compliance with 36 U.S.C. 371, the claim for priority must be made during the pendency of the application and within the time limit set forth in the PCT and the Regulations under the PCT.

**NOTE:** 37 C.F.R. § 1.55 Claim for foreign priority.

"(a) An applicant in a nonprovisional application may claim the benefit of the filing date of one or more prior foreign applications under the conditions specified in 35 U.S.C. 119(a) through (d) and (f), 172, and 365(a) and (b).

(1)(i) In an original application filed under 35 U.S.C. 111(a), the claim for priority must be presented during the pendency of the application, and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior foreign application. This time period is not extendable. The claim must identify the foreign application for which priority is claimed, as well as any foreign application for the same subject matter and having a filing date before that of the application for which priority is claimed, by specifying the application number, country (or intellectual property authority), day, month, and year of its filing. The time period in this paragraph does not apply to an application for a design patent.

(ii) In an application that entered the national stage from an international application after compliance with 35 U.S.C. 371, the claim for priority must be made during the pendency of the application and within the time limit set forth in the PCT and the Regulations under the PCT."

(2) The claim for priority and the certified copy of the foreign application specified in 35 U.S.C. 119(b) or PCT Rule 17 must, in any event, be filed before the patent is granted. If the claim for priority or the certified copy of the foreign application is filed after the date the issue fee is paid, it must be accompanied by the processing fee set forth in § 1.17(i), but the patent will not include the priority claim unless corrected by a certificate of correction under 35 U.S.C. 255 and § 1.323.

☐ Foreign priority is claimed for this application as follows:

Country: \_\_\_\_\_

Application No.: \_\_\_\_\_

Filing date: \_\_\_\_\_

Status: \_\_\_\_\_

Foreign application having a filing date before that of the above application for which priority is claimed.

☐ None

☐ Country: \_\_\_\_\_

Application No.: \_\_\_\_\_

Filing date: \_\_\_\_\_

Status: \_\_\_\_\_

**7. Assignee information**

**NOTE:** 37 C.F.R. § 1.76(b) "Assignee information. This information includes the name (either person or juristic entity) and address of the assignee of the entire right, title, and interest in an application. Providing this information in the application data sheet does not substitute for compliance with any requirement of part 3 of this chapter to have an assignment recorded by the Office."

**NOTE:** 37 C.F.R. § 1.215(b): "(b) If applicant wants the patent application publication to include assignee information, the applicant must include the assignee information on the application transmittal sheet or the application data sheet (§ 1.76). Assignee information may not be included on the patent application publication unless this information is provided on the application transmittal sheet or application data sheet included with the application on filing. Providing this information on the application transmittal sheet or the application data sheet does not substitute for compliance with any requirement of part 3 of this chapter to have an assignment recorded by the Office."

The assignee(s) of this application is/are:

Name of assignee: 4Wave, Inc.

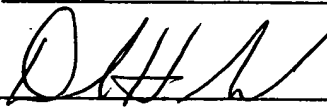
Address of assignee: 22977 Eaglewood Court, Suite 120  
Sterling, VA 20166

Extent of interest of assignee in application: \_\_\_\_\_

Reg. No. 33,701

Tel. No. (215) 963-5055

Customer No. \_\_\_\_\_

  
\_\_\_\_\_  
Signature of Practitioner

Daniel H. Golub  
\_\_\_\_\_  
(type or print name of practitioner)

1701 Market Street  
\_\_\_\_\_  
P.O. Address

Philadelphia, PA 19103  
\_\_\_\_\_